Viva Questions: Physics Lab (PPH-151)

(Experiment 1-6)

Experiment 1: Fresnel Biprism

1. What is the object of Fresnel Biprism experiment?
2. What are the three angle of Fresnel Biprism?
3. Write the formula to calculate the wavelength of monochromatic light in Fresnel Biprism experiment?
4. In order to calculate wavelength of light in Fresnel Biprism experiment which parameters are observed/required?
5. Write the formula to calculate the d (the distance between the two virtual sources)?
6. Name the two methods used to calculate d (the distance between the two virtual sources)?
7. What is the shape of the fringes formed/observed in Fresnel Biprism experiment?
8. Name the source of light used in this experiment.
9. Which phenomenon of light takes place in the formation of fringes in Fresnel Biprism experiment?
10. Explain interference?
11. What are coherent sources?
12. What are the conditions necessary to obtain interference pattern?
13. Are the fringes formed due to Division of Wave front OR Division of Amplitude?
14. How coherent sources produced in Fresnel Biprism experiment?
15. What is fringe width?
16. Is the spacing between the fringes constant or variable?
17. What is the value of least count of eyepiece?
18. Hoe to you measure D (distance between the slit and eyepiece)?
19. How do you measure a (distance between the slit and biprism)?
20. What is the value of refractive index of Biprism?
21. What is the value of angle of biprism?
22. In order to locate the zero order fringe in Fresnel Biprism experiment a …….light source is required

Experiment 2: Newton's Ring

1. What is the object of Newton's ring experiment?
2. Which phenomenon of light takes place during formation of rings in Newton's Ring Experiment?
3. What is the shape of the fringes formed/observed in Newton's Ring Experiment?
4. In Newton's ring experiment what is the value of radius of curvature of the plano convex lens?
5. Are the rings formed due to Division of Wave front OR Division of Amplitude?
6. How wedge shape air film is created in this experiment?
7. At what angle glass plate is inclined?
8. Why glass plate is inclined at 45^0?
9. Write the formula to calculate the wavelength of monochromatic light in Newton's ring experiment?
10. What is D_n and D_{n+p} in the formula?
11. What is the 'p' in this formula?
12. Is the spacing between the rings constant or variable?
13. What is the least count of microscope?
14. In Newton's Ring experiment the central ring observed is Bright/Dark?
15. Name the source of light used in this experiment. What is the standard wavelength of sodium lamp?
16. How do you determine the diameter of the rings experimentally?
17. In Newton's ring experiment in Order to calculate the wavelength of monochromatic light a graph is drawn between which parameters.
18. Why Newton's rings are of circular shape?

Experiment 3: Law of Malus

1. Define Law of Malus?
2. Define linearly polarized/plane polarized light?
3. What is the difference between unpolarized and linearly polarized light?
4. Name different types of polarized light?
5. What is the function of polarizer and analyzer?
6. In this experiment ……. (polarizer/analyzer) is rotated.
7. Which instrument is used to measure the intensity of light
8. If an unpolarized light is incident on polarizer and analyzer respectively then at which two angles between the polarizer and analyzer will the intensity of emergent light be minimum?
9. If an unpolarized light is incident on polarizer and analyzer respectively then at which two angles between the polarizer and analyzer will the intensity of emergent light be maximum?
10. If an unpolarized light if intensity I is incident on polarizer then what is the intensity of light emerging out form the polarizer?
11. If three Nicol prism A, B, C are placed such that Nicol A is crossed to B and Nicol B is crossed to C. If an unpolarized light of intensity I is incident on Nicol A, then find the intensity of light emerging out of Nicol A, B, and C.

Experiment 4: Variation of Magnetic Field

1. What is the object of experiment?
2. Name the apparatus used in this experiment to observe the variation of magnetic field.
3. What is the working principle of this experiment?
4. Describe Tangent Law of magnetism?
5. Is the coil magnetic or nonmagnetic?
6. How magnetic field is generated in the coil?
7. Is Biot-Savart's law applicable in this experiment?
8. How can we determine the direction of magnetic field generated in the coil?
9. State the unit of magnetic field.
10. How do we set the apparatus in magnetic meridian?
11. What is the role of commutator in this experiment?
12. In this experiment on graph which parameter is plotted on X-Axis and which parameter is plotted on Y-Axis?
13. What is point of inflexion?
14. What type of variation in the magnetic field do you observe in the graph?
15. Where is the magnetic field maximum at x=…..?
16. In the experiment "Variation of magnetic field", Tangent law is applicable by placing the coil in
17. In the experiment "Variation of magnetic field" the magnetic field produced in the circular coil depends on
18. The graph shows the variation of magnetic field the distance between the points of inflexion is the ……. of the coil

Experiment 5: Planck's constant

1. In the experimental data if ΔVs is the stopping potential and $\Delta\upsilon$ is the change in frequency and e= electron charge then, the Planck's Constant is determined using the formula
2. In photoelectric effect the 'work function' and 'threshold frequency' are parameters related to the
3. Define photoelectric effect.
4. What is threshold frequency?
5. What is the value of Planck's constant?
6. In order to calculate Planck's constant the graph is plotted between which parameters?
7. What is the relation between the stopping potential and frequency of light?

Experiment 6: Diffraction Grating Experiment

1. What is the object of Diffraction Grating experiment?
2. Which light source is used in the diffraction experiment?
3. What is a diffraction grating and how is it formed?
4. On what principle is the experiment based?
5. Define the phenomenon of diffraction?
6. Which type of Fraunhofer diffraction or Fresnel diffraction is applicable in this experiment?
7. What is the difference between Fresnel and Fraunhofer diffraction?
8. In our laboratory the diffraction experiment is based on……. Diffraction (Fresnel/Fraunhofer)?
9. How do you obtain plane wave front in this experiment?
10. What is the essential condition for diffraction (in terms of slit width)?
11. What is grating element? What is **e** and **d**?
12. Write the formula to calculate the wavelength of spectral lines in Diffraction?
13. What is N? What is the value of N used in this experiment?
14. What is n? What is the maximum value of n?
15. Can the maximum number of order of principal maxima i.e. n_{max} be changed?
16. Find the value of maximum order n_{max} if: $2\lambda < (e+d) < 3\lambda$
17. Why the central spectral line which correspond to n=0 is observed to be white?
18. Diffraction angle θ will be greater for violet wavelength or red wavelength? Why?
19. What is the name of apparatus which is used to measure the diffraction angle for different wavelengths?
20. What is the value of least count of spectrometer?
21. What is the effect on the principal maxima due to increasing the number of lines on the grating?
22. Write the formula to find the value of grating element (e+d)…….. in cm?
23. In diffraction grating experiment central spectral line which correspond to n=0 is……..(white/coloured)